

REMARKS

Claims 1-30 are pending. Claims 1, 3, 11 and 19 are amended. Claim 1 is amended solely for format, claim 3 to correct a typographical error, claim 11 to remove an unnecessary word, and claim 19 to improve readability. The amendments have no bearing on patentability and are non-narrowing in scope. In addition, the specification has been amended to correct minor informalities found therein and to provide section headings. Lastly, Fig. 3 has been amended to remove a redundant, and incorrect, use of reference number 64. Reference number 64 applies to the radially outer surface and in Fig. 3 it was used to designate both the radially outer surface and the radially inner surface. The reference to the radially inner surface has been removed as that is indicated by reference number 66.

Applicant appreciates the courtesies shown to Applicant's representative by Examiner Pickard in the August 30, 2005, personal interview. Applicant's separate record of the substance of the interview is incorporated into the following remarks.

In paragraph I. A, on page 2 of the Office Action, claims 1, 2, 6, 7, 11, 12, 18, 19 and 30 were rejected under 35 U.S.C. §102(e) as being anticipated by Trantow et al., U.S. Patent No. 6,540,231 (Trantow). The rejection is respectfully traversed.

Applicant's invention of claim 1 calls for a sealing arrangement for sealing a leakage gap between relatively moveable parts in a flow path between a region of high fluid pressure and a region of low fluid pressure, comprises a hydrodynamic circumferential sealing member having an upstream surface; a downstream surface; a radially outer surface; and a radially inner surface, the sealing member being in communication with a housing via resilient means, wherein the resilient means is fixedly joined to the upstream surface of the sealing member such that during operation both the radial force induced on the sealing member by fluid flowing axially into and circumferentially over the radially inner surface and the axial force

induced on the sealing member because of a pressure difference across the sealing member is resisted by the resilient means. Trantow discloses no such device.

Trantow is basically the art described in Applicant's Background, that is, a brush seal. Specifically, Trantow discloses a plurality of bristles 59 held between a carrier 56 and a front plate 63. The carrier 56 is supported via plurality of support wires 58 to a holder 42 which, in turn, is mounted via a retainer plate 52 to a seal support 36. The plurality of bristles 59 contact a rotating member 38.

Conversely, Applicant's claimed invention is to a hydrodynamic circumferential sealing member (page 8, 2nd paragraph; page 9, 3rd full paragraph of application) having an upstream surface, a downstream surface, a radially outer surface and a radially inner surface. That is, Applicant's invention, as is made clear from the specification, is a "substantially solid" device as discussed with respect to Figs. 3 and 4 and addressed in the last paragraph on page 7 in structural detail. The structure is also supported by the remaining disclosure. A bristle, on the other hand, generally has a circular cross-surface section. Thus, it is very difficult to define a front surface, a rear surface and there is clearly no upper surface associated with the bristles and the lower surface is far from a continuous type surface as each bristle has its independent surface. Thus, there is no true upper surface, lower surface, front surface or rear surface in the context of surface, particularly as defined by the context of Applicant's specification.

In addition to the problems suffered by brush seals, as discussed in the first full paragraph on page 3 of Applicant's specification, Trantow also notes, in col. 1, lines 35-40, that brush seals do not completely seal one engine section from another but that they have a certain amount of leakage. Thus, they clearly do not provide upstream and downstream surfaces in the context of Applicant's claimed surfaces that, as defined in the specification, are

substantially solid surfaces, substantially only dealing with the case where segments are used rather than a solid or continuous structure for the sealing member.

Lastly, as discussed at the interview, brush seals are in contact with the rotary member. Conversely, Applicant's hydrodynamic circumferential sealing member maintains a separation between the radially inner surface 66 and the rotatable member 52 during operation with the exception possibly of startup or shutdown where the radially inner surface 66 may contact the first rotatable member 52 (page 9, 3rd full paragraph through page 10, second full paragraph).

Thus, as discussed at the interview, Trantow does not literally disclose the claimed invention and a rejection under 35 U.S.C. §102 is inappropriate. Further, Trantow, drawn to a brush seal having the problems that Applicant's invention specifically addresses and overcomes, cannot suggest the claimed invention. Additionally, Trantow, dealing with a brush seal, does not literally disclose a plurality of channels on the inner surface passing from an upstream surface to a downstream surface (claim 2) or a circumferential flange that is provided substantially towards the downstream end of a radially inner surface of the sealing member (claim 18). Trantow teaches away from Applicant's claim 19, which talks about an increased radially inward force provided by the resilient means when there is an increase in the clearance between the radially inner surface of the sealing member and the first rotatable member, as Trantow teaches the radially inner ends of the bristles are maintained in contact with the rotating member. As to claims 6, 7, 11, 12 and 30, they are allowable for all of the reasons discussed above with respect to claim 1 and for the additional features recited therein.

In paragraph II. A on page 4 of the Office Action , claims 3-5, 8-10, 13-17 and 20-29 were rejected under 35 U.S.C. §103(a) as being unpatentable over Trantow. The rejection is respectfully traversed.

As noted above, there are no true channels in Trantow as it deals with a plurality of bristles. Thus, there can be no specified depths of any channels as found in Applicant's claim 3, nor can there be any change of direction in the channels (claim 4) or the channels are arcuate (claim 5). Likewise, the plurality of bristles of Trantow are not in any way described as divided into a plurality of segments and doing so most likely would create significant air leaks which is counter to the purpose of the seal, thus Trantow does not suggest the subject matter of claims 8-10. Further, Trantow specifically teaches that the plurality of bristles are in contact with the rotating member. Thus, Trantow teaches away from the subject matter of Applicant's claims 14-17.

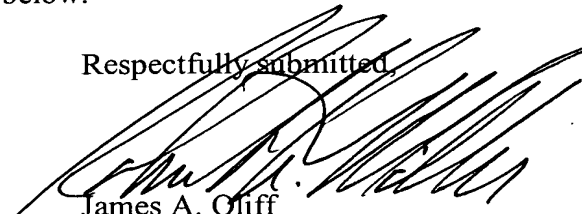
Again, Trantow, which discloses a plurality of bristles, cannot disclose a sealing member that is pierced providing at least one passage which extends from the upstream surface to the radially inner surface (claim 20) or that the at least one passage induces a radially outward displacement of the sealing member (claim 21). Nowhere in Trantow is there any suggestion of a sealing means provided between the downstream surface of the sealing member, wherein the sealing means is formed as a radially resilient ring located in the circumferential groove provided in the housing (claim 23), the sealing means is formed as a discontinuous ring (claim 24), the sealing means is selected from at least one group of materials (claim 25), a sealing device is provided between the housing and the sealing member, the sealing device being positioned upstream of the downstream surface (claim 26), or a tortuous path is formed in the sealing device (claim 27). Likewise, there is no discussion that the radially inner end of the plurality of bristles are provided with an erosion-resistant surface (claim 28), such being fruitless in Trantow, given that the bristles flex, and therefore more than their radially inner ends or surfaces would be in contact with a rotating member nor that those materials might be made of one of the materials found in claim 29. Thus, in addition to the fact that Trantow neither anticipates nor suggests the subject matter of claim 1,

Trantow does not disclose or suggest the subject matter the claims as alleged for all the reasons discussed with respect to claim 1 and for the additional features recited therein.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-30 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachment:
Replacement Sheet

Date: September 1, 2005

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<p>DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry; Charge any fee due to our Deposit Account No. 15-0461</p>

Amendments to the Drawings:

The attached replacement drawing sheet makes a change to Fig. 3 and replaces the original sheet with Figs. 3 and 4.

Attachment: Replacement Sheet